SO_2 SIP

Appendix K

Installation Permits

K-1: U. S. Steel Clairton

K-2: U. S. Steel Edgar Thomson

K-3: U. S. Steel Irvin

K-4: Harsco (Braddock Recovery)

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Installation Permits

This appendix includes the source installation permits that provide enforceability of the limits included in the Control Strategy of the SIP. All installation permits are federally enforceable for Allegheny County. Some permit conditions that are not directly applicable to this SIP have been redacted.

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K-1: U. S. Steel Clairton

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AIR QUALITY PROGRAM
301 39th Street, Bldg. #7
Pittsburgh, PA 15201-1811

Federally Enforceable Installation Permit For 1-Hour SO_2 NAAQS

Issued To: **U. S. Steel Mon Valley Works**
Clairton Plant
400 State Street
Clairton, PA 15025-1855

ACHD Permit#: **0052-I017**

Date of Issuance: September 14, 2017

Expiration Date: (See Section III.12)

Issued By: _____
JoAnn Truchan, P.E.
Section Chief, Engineering

Prepared By: _____
Hafeez A. Ajenifuja
Air Quality Engineer

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AMENDMENTS:

DATE SECTION(S)

I. CONTACT INFORMATION

Facility Location:
U. S. Steel Mon Valley Works
Clairton Plant
400 State Street
Clairton, PA 15025-1855

Permittee/Owner:
U. S. Steel Mon Valley Works
Clairton Plant
400 State Street
Clairton, PA 15025-1855

Responsible Official: **Kurt Barshick**
Title: General Manager
Company: U. S. Steel Mon Valley Works
Address: P.O. Box 878
Dravosburg, PA 15034
Telephone Number: (412) 675-2600
Fax Number: (412) 675-5407

Facility Contact: **Jonelle Scheetz**
Title: Environmental Control Engineer
Telephone Number: (412) 233-1015
Fax Number: (412) 233-1011
E-mail Address: jsscheetz@uss.com

AGENCY ADDRESSES:

ACHD Contact:
Chief Engineer
Allegheny County Health Department
Air Quality Program
301 39th Street, Building #7
Pittsburgh, PA 15201-1811

EPA Contact:
Enforcement Programs Section (3AP12)
USEPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

II. FACILITY DESCRIPTION

FACILITY DESCRIPTION

U. S. Steel Mon Valley Works Clairton Plant is the largest by-products coke plant in North America. The Clairton Plant operates 10 coke batteries and produces approximately 13,000 tons of coke per day from the destructive distillation (carbonization) of more than 18,000 tons of coal. During the carbonization process, approximately 225 million cubic feet of coke oven gas are produced. The volatile products of coal contained in the coke oven gas are recovered in the by-products plant. In addition to the coke oven gas, daily production of these by-products include 145,000 gallons of crude coal tar, 55,000 gallons of light oil, 35 tons of elemental sulfur, and 50 tons of anhydrous ammonia. The coke produced is used in the blast furnace operations in the production of molten iron for steel making.

[redacted]

The emission units regulated by this permit are summarized in Table II-1:

TABLE II-1: Emission Unit Identification

I.D.	SOURCE DESCRIPTION	SO_2 CONTROL DEVICE(S)	MAXIMUM CAPACITY	FUEL/RAW MATERIAL	STACK I.D.
B001	Boiler 1	NA	760 MMBtu/hour	Coke Oven Gas and Natural Gas	NA
B002	Boiler 2	NA	481 MMBtu/hour	Coke Oven Gas and Natural Gas	NA
B005	Boiler R1	NA	229 MMBtu/hour	Coke Oven Gas and Natural Gas	NA
B006	Boiler R2	NA	229 MMBtu/hour	Coke Oven Gas and Natural Gas	NA
B007	Boiler T1	NA	56 MMBtu/hour	Coke Oven Gas and Natural Gas	NA
B008	Boiler T2	NA	156 MMBtu/hour	Coke Oven Gas and Natural Gas	NA
P001	Battery 1 (Underfiring)	NA	517,935 tons of coal charged per year	Coke Oven Gas and Natural Gas	S001
P002	Battery 2 (Underfiring)	NA	517,935 tons of coal charged per year	Coke Oven Gas and Natural Gas	S002

I.D.	SOURCE DESCRIPTION	SO_2 CONTROL DEVICE(S)	MAXIMUM CAPACITY	FUEL/RAW MATERIAL	STACK I.D.
P003	Battery 3 (Underfiring)	NA	517,935 tons of coal charged per year	Coke Oven Gas and Natural Gas	S003
P007	Battery 13 (Underfiring)	NA	545,675 tons of coal charged per year	Coke Oven Gas and Natural Gas	S007
P008	Battery 14 (Underfiring)	NA	545,675 tons of coal charged per year	Coke Oven Gas and Natural Gas	S008
P009	Battery 15 (Underfiring)	NA	545,675 tons of coal charged per year	Coke Oven Gas and Natural Gas	S009
P010	Battery 19 (Underfiring)	NA	1,002,290 tons of coal charged per year	Coke Oven Gas and Natural Gas	S010
P011	Battery 20 (Underfiring)	NA	1,002,290 tons of coal charged per year	Coke Oven Gas and Natural Gas	S011
P012	B Battery (Underfiring)	NA	1,491,025 tons of coal charged per year	Coke Oven Gas and Natural Gas	S012
P046	C Battery (Underfiring)	NA	1,379,059 tons of coal charged/year	Coke Oven Gas and Natural Gas	S046
P013	Quench Tower 1	NA	1,553,805 tons of coal per year	Incandescent coke and water	NA
P017	Quench Tower B	NA	1,491,025 tons of coal per year	Incandescent coke and water	NA
P047	Quench Tower C	NA	1,379,059 tons of coal per year	Incandescent coke and water	NA
P015A	Quench Tower 5A	NA	1,270,200 tons of coke per year	Incandescent coke and water	NA
P016A	Quench Tower 7A	NA	1,555,630 tons of coke per year	Incandescent coke and water	NA

DECLARATION OF POLICY

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III. GENERAL CONDITIONS

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[redacted]

[redacted]

b. Unless specified otherwise in this permit or in the applicable regulation, the term "*year*" shall mean any twelve (12) consecutive months.

[redacted]

[redacted]

[redacted]

[redacted]

15. Reporting Requirements (§2103.12.k)

a. The permittee shall submit reports of any required monitoring at least every six (6) months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by the Responsible Official.

b. Prompt reporting of deviations from permit requirements is required, including those attributable to upset conditions as defined in this permit and Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.

c. All reports submitted to the Department shall comply with the certification requirements of General Condition III.4 above.

d. Semiannual reports required by this permit shall be submitted to the Department as follows:

1) One semiannual report is due by July 31 of each year for the time period beginning January 1 and ending June 30.
2) One semiannual report is due by January 31 of each year for the time period beginning July 1 and ending December 31.

e. Quarterly reports required by this permit shall be submitted to the Department on the last day of the month following each calendar quarter. The first quarterly report for the period October 4, 2018 to December 31, 2018, will be due January 31, 2019.

f. Reports may be emailed to the Department at aqreports@alleghenycounty.us in lieu of mailing a hard copy.

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IV. SITE LEVEL TERMS AND CONDITIONS

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted].

25. SO_2 Compliance Monitoring

a. The permittee shall not operate, or allow to be operated, any source in such manner that unburned coke oven gas is emitted into the open air. In addition, the permittee shall not flare, mix, or combust coke oven gas, or allow such gas to be flared, mixed or combusted unless the concentration of sulfur compounds, measured as hydrogen sulfide, in such gas is less than or equal to 35 grains per hundred dry standard cubic feet of coke oven gas produced by Clairton Plant, when all sulfur emissions from the Claus Sulfur Recovery Plant and the tail gas cleaning equipment thereon, expressed as equivalent H_2S are added to the measured H_2S. The concentration of sulfur compounds specified shall include the tail-gas sulfur, measured as hydrogen sulfide, emitted from sulfur removal equipment. [§2105.21.h].

b. For sources listed in Table V-A-1, the permittee shall determine the H_2S grain loading and flow rate of the fuel as combusted. The permittee shall record the output of each system for measuring sulfur dioxide emissions discharged to the atmosphere.

26. SO_2 Compliance

The restrictions and requirements in Sections V.A and 0 will become effective on or before October 4, 2018.

V. EMISSION UNIT LEVEL TERMS AND CONDITIONS

A. SO_2 Limits – Boilers and Coke Oven Battery Underfire Stacks

1. Restrictions:

a. The combustion units listed in Table V-A-1 shall only combust natural gas and coke oven gas. (§2102.04.b.6)

b. SO_2 emissions from the following sources shall not exceed the limitations in Table V-A-1 below: [§2102.04.b.6, §2105.21.h]

TABLE V-A-1. SO_2 Emission Limitations

Process	Thirty-day (30-day) Emission Limit* (lb/hr)	Supplementary 24-hr Limit** (lb/hr)
Boiler 1	118.44***	134.06***
Boiler 2		
Boiler R1		
Boiler R2		
Boiler T1		
Boiler T2		
Battery 1 Underfiring	10.41	13.27
Battery 2 Underfiring	9.15	11.66
Battery 3 Underfiring	10.57	13.47
Battery 13 Underfiring	13.93	15.70
Battery 14 Underfiring	14.03	15.80
Battery 15 Underfiring	18.67	21.04
Battery 19 Underfiring	29.37	33.09
Battery 20 Underfiring	27.00	30.42
B Battery Underfiring	21.38	27.26
C Battery Underfiring	32.03	40.83

* Limits are based on a rolling 30-day average of 24-hour (calendar day) averages.

** Supplementary 24-hour limit is not to be exceeded more than 3 times consecutively (over any consecutive 3 calendar day period).

*** Emission limits are on an aggregate basis.

2. Testing Requirements:

a. The permittee shall have sulfur dioxide (SO_2) emissions stack tests performed on the boiler stacks and battery underfire stacks at least once every two years as required by Article XXI §2108.02.b. SO_2 emission tests shall be conducted according to Method 6, 6A, 6B, or 6C as specified in 40 CFR 60, Appendix A. The permittee shall submit a stack test protocol to the Department for approval at least 45 days prior to the test date(s). [§2108.02.b and §2108.02.e]

b. Emissions of SO_2 shall be determined by converting the H_2S grain loading of the fuel burned and the fuel flow rate to pounds per hour to determine compliance with the emission limitations of Table V-A-1 above. [§2103.12.h.1]

[redacted]

3. Monitoring Requirements:

a. Except for monitor malfunctions, , associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the permittee shall continuously monitor and record the H_2S concentration (in grains(gr)/100 dscf) of the COG combusted and the fuel flow rate required in Site Level Condition IV.25.b. Continuously shall be defined as at least once every 15 minutes. [§2102.04.b.6; §2103.12.i]

b. Monitoring of the H_2S concentration of the COG shall meet the requirements of 90% data availability . [§2102.04.b.6; §2103.12.i]

c. On or before March 31, 2018, the permittee shall propose, for Department approval, a procedure for measuring the H_2S content of the gas during periods of monitoring malfunction or breakdowns. [§2102.04.b.6; §2103.12.i]

4. Record Keeping Requirements:

a. The permittee shall keep records of hourly fuel use (COG and natural gas) and hourly H_2S concentration in grains per 100 dscf. [§2103.12.j]

b. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2102.04.b.6]

[redacted]

5. Reporting Requirements:

a. The permittee shall report the concentration of H_2S per 100 dscf of COG averaged over a calendar day to the Department on a quarterly basis, in accordance with General Condition III.15.e. All instances of non-compliance with the conditions of this permit along with all corrective action taken to restore the subject equipment to compliance shall be reported. [§2103.12.k]

b. Reporting instances of non-compliance in accordance with condition V.A.5.a above, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. (§2103.12.k)

c. Reporting instances of non-compliance does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. (§2103.12.k)

[redacted]

[redacted]

[redacted]

[redacted].

B. SO_2 Limits – PEC Baghouses, SCOT Stack, Quench Towers, and Hot Cars

1. Restrictions:

a. During planned outages of the SCOT Plant, the permittee shall re-route the Claus Plant tail gas to the battery suction main. [§2102.04.b.6]

b. In the event of an unplanned SCOT Plant outage, the Claus Plant tail gas shall be re-routed to the battery suction main as soon as practicable. [§2102.04.b.6]

c. SO_2 emissions from the following sources shall not exceed the limitations in Table V-B-1 below: [§2102.04.b.6, §2105.21.h.4]

TABLE V-B-1: SO_2 Emission Limitations

POLLUTANT	SO_2 Emission Limit (lb/hr)
PEC Baghouse 1-3	7.10
PEC Baghouse 13-15	7.46
PEC Baghouse 19-20	7.78
PEC Baghouse B	7.50
PEC Baghouse C	8.65
SCOT Stack	24.00
Quench Tower 1	0.75
Quench Tower B	4.09
Quench Tower C	5.00
Quench Tower 5A	7.56
Quench Tower 7A	7.21
Batteries 1-3 Hot Car	10.64
Batteries 13-15 Hot Car	11.21
Batteries 19-20 Hot Car	13.73
C Battery Hot Car	5.82

2. Testing Requirements:

a. The permittee shall perform or cause to be performed baghouse emission stack tests for SO_2 at least once every two years in accordance with approved EPA methods and performed according to §2108.02 of Article XXI. [§2108.02]

b. The permittee shall have SCOT Plant emission stack tests for SO_2 conducted at least once every two years in accordance with approved EPA methods and performed according to §2108.02 of Article XXI. [§2108.02]

[redacted]

3. Monitoring Requirements:

a. The permittee shall monitor and record the online (operating) hours of the SCOT Plant. [§2103.12.i]

b. The permittee shall record the number of pushes per day and the amount of coal charged daily for each Battery Unit. [§2103.12.i]

4. Record Keeping Requirements:

a. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance. [§2102.04.b.6; §2103.12.j]

b. The permittee shall maintain monthly records of all monitoring required per Condition V.B.3 for at least five (5) years. These records shall be made available to the Department upon request for inspection and/or copying. [§2102.04.b.6; §2103.12.j.2]

5. Reporting Requirements:

a. The permittee shall report to the Department quarterly, in accordance with General Condition III.15.e, all instances of non-compliance with the conditions of this permit along with all corrective action taken to restore the subject equipment to compliance. [§2103.12.k]

b. Reporting instances of non-compliance in accordance with condition V.A.5.a above, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2103.12.k]

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K-2: U. S. Steel Edgar Thomson

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AIR QUALITY PROGRAM
301 39th Street, Bldg. #7
Pittsburgh, PA 15201-1811

Federally Enforceable Installation Permit For 1-Hour SO_2 NAAQS

Issued To: **U. S. Steel Mon Valley Works**
Edgar Thomson Plant
13th Street and Braddock Avenue
Braddock, PA 15104

ACHD Permit#: **0051-I006**

Date of Issuance: September 14, 2017

Expiration Date: (See Section III.12)

Issued By: _____
JoAnn Truchan, P.E.
Section Chief, Engineering

Prepared By: _____
Hafeez A. Ajenifuja
Air Quality Engineer

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AMENDMENTS:

DATE SECTION(S)

I. CONTACT INFORMATION

Facility Location:
U. S. Steel Mon Valley Works
Edgar Thomson Plant
13th Street and Braddock Avenue
Braddock, PA 15104

Permittee/Owner:
U. S. Steel Mon Valley Works
Edgar Thomson Plant
13th Street and Braddock Avenue
Braddock, PA 15104

Responsible Official:	**Kurt Barshick**
Title:	General Manager
Company:	U. S. Steel Mon Valley Works
Address:	P.O. Box 878 Dravosburg, PA 15122
Telephone Number:	412-675-2600
Fax Number:	412-675-5407

Facility Contact:	**Coleen M. Davis**
Title:	Sr. Environmental Control Engineer
Telephone Number:	412-273-4730
Fax Number:	412-273-7099
E-mail Address:	cdavis@uss.com

AGENCY ADDRESSES:

ACHD Contact:
Chief Engineer
Allegheny County Health Department
Air Quality Program
301 39th Street, Building #7
Pittsburgh, PA 15201-1811

EPA Contact:
Enforcement Programs Section (3AP12)
USEPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

II. FACILITY DESCRIPTION

FACILITY DESCRIPTION

The U. S. Steel Mon Valley Works Edgar Thomson Plant (ET) is an iron and steel making facility that produces mainly steel slabs. Raw materials such as coke, iron-bearing materials, and fluxes are charged to blast furnaces in the iron making process. Molten metal (iron) is tapped from the blast furnace at the casthouse into transfer ladles. The hot metal is then transferred to a hot metal mixer or direct pour station in preparation for desulfurization. For desulfurization, a reagent is added to the hot metal, causing sulfur and other impurities to form and rise to the surface. Desulfurized hot metal is then introduced into the basic oxygen process (BOP), where the hot metal is transformed into molten steel. Scrap, alloys, fluxes, and oxygen are also introduced at the BOP. The liquid steel is tapped from the BOP vessels and transferred to the ladle metallurgy facility (LMF) or Vacuum Degasser, where the properties of the steel can be more precisely refined according to customer specifications. To achieve this additional refining at the LMF or Vacuum Degasser, specific alloying materials are added to the process. The refined liquid steel is then charged to the dual strand continuous caster mold. The steel slabs are formed in the continuous caster and are cut to length, ground, slit as necessary, and shipped offsite. There are three Riley Boilers at ET, which are used to generate steam, heat, and electricity for the plant. The three primary fuels for the boilers are Blast Furnace Gas (BFG), Coke Oven Gas, (COG), and Natural Gas (NG).

The facility has two (2) processes that are operated by an outside contractor:

1. BOP Slag Processing; and
2. Waste Product Recycling and Briquetting.

The BOP slag handling system is being operated by Tube City IMS, LLC, while the Waste Product Recycling and Briquette is operated by Braddock Recovery Inc, a division of Harsco Corporation.

Both Tube City IMS, Inc. and Braddock Recovery Inc. are located on U .S. Steel Edgar Thomson property and are considered Title V facilities by ACHD. These facilities are part of the same major source, acting as support facilities to Edgar Thomson Plant, and will be obtaining their own Title V operating permit in the near future.

In addition, BOC Gases (Linde) is another support facility that is located outside U. S. Steel Edgar Thomson compound but supplies oxygen to U. S. Steel Edgar Thomson Plant. BOC Gases is also supplying gases to other companies and is therefore not considered a co-located Title V facility at this time.

The facility, which is located in Braddock, Pennsylvania, is a major source of particulate matter less than 10 microns in diameter (PM_{10}), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOC), and Hazardous Air Pollutants (HAPs), as defined in Section 2101.20 of Article XXI.

[redacted]

The emission units regulated by this permit are summarized in Table II-1:

TABLE II-1: Emission Unit Identification

I.D.	SOURCE DESCRIPTION	SO_2 CONTROL DEVICE(S)	MAXIMUM CAPACITY	FUEL/RAW MATERIAL	STACK I.D.
P001a	Blast Furnace No. 1 Casthouse	NA	1,752,000 TPY (Production)	Coke, Iron- Bearing Materials, Fluxes	S002
P001b	Blast Furnace No. 1 Stoves	NA	495 MMBtu/hour (total)	BFG, COG & Natural Gas	S001
P002a	Blast Furnace No. 3 Casthouse	NA	1,752,000 TPY (Production)	Coke, Iron- Bearing Materials, Fluxes	S002
P002b	Blast Furnace No. 3 Stoves	NA	495 MMBtu/hour (total)	BFG, COG & Natural Gas	S004
P003	Basic Oxygen Process (BOP) Shop	NA	3, 467,500 TPY (Production)	Hot Metal (Iron), Fluxes, Scrap, Alloy Additives	S005-S008
P005	Dual Strand Caster	NA	3, 467,500 TPY (Production)	Steel (Liquid), Fluxes	N/A
B001	Riley Boiler No. 1	NA	525 MMBtu/hr	Blast Furnace Gas, Coke Oven Gas & Natural Gas	S012
B002	Riley Boiler No. 2	NA	525 MMBtu/hr	Blast Furnace Gas, Coke Oven Gas & Natural Gas	S013
B003	Riley Boiler No. 3	NA	525 MMBtu/hr	Blast Furnace Gas, Coke Oven Gas & Natural Gas	S014

DECLARATION OF POLICY

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III. GENERAL CONDITIONS

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[redacted] [redacted]

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[redacted] [redacted]

[redacted]

15. Reporting Requirements (§2103.12.k)

a. The permittee shall submit reports of any required monitoring at least every six (6) months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by the Responsible Official.

b. Prompt reporting of deviations from permit requirements is required, including those attributable to upset conditions as defined in this permit and Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.

c. All reports submitted to the Department shall comply with the certification requirements of General Condition III.4 above.

d. Semiannual reports required by this permit shall be submitted to the Department as follows:

1) One semiannual report is due by July 31 of each year for the time period beginning January 1 and ending June 30.
2) One semiannual report is due by January 31 of each year for the time period beginning July 1 and ending December 31.

e. In accordance with Department procedures, reports may be emailed to the Department at aqreports@alleghenycounty.us in lieu of mailing a hard copy.

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IV. SITE LEVEL TERMS AND CONDITIONS

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[redacted]

[redacted]

27. SO_2 Compliance Monitoring

The permittee shall not operate, or allow to be operated, any source in such manner that unburned coke oven gas is emitted into the open air. In addition, the permittee shall not flare, mix, or combust coke oven gas, or allow such gas to be flared, mixed or combusted unless the concentration of sulfur compounds, measured as hydrogen sulfide, in such gas is less than or equal to 35 grains per hundred dry standard cubic feet of coke oven gas produced by the Clairton Plant, when all sulfur emissions from the Claus Sulfur Recovery Plant and the tail gas cleaning equipment thereon, expressed as equivalent H_2S are added to the measured H_2S. The concentration of sulfur compounds specified shall include the tail-gas sulfur, measured as hydrogen sulfide, emitted from sulfur removal equipment. [§2105.21.h].

28. SO_2 Compliance

The restrictions and requirements in Section V.A will become effective on or before October 4, 2018.

V. EMISSION UNIT LEVEL TERMS AND CONDITIONS

A. SO_2 Limits

The permittee is subject to the following conditions:

1. Restrictions:

a. The combustion units listed in Table V-A-1 shall only combust natural gas, blast furnace gas, and coke oven gas.

b. The permittee shall construct a new stack consisting of combined flue systems for Riley Boilers 1, 2, and 3. All three Riley boilers shall exhaust at all times to the new stack, constructed to a minimum release height of 70 meters.

c. SO_2 emissions from the following sources shall not exceed the limitations in Tables V-A-1 and V-A-2 below: [§2102.04.b.6, §2105.21.h.4]

TABLE V-A-1: Combustion Unit Emission Limitations

PROCESS/EQUIPMENT	MAXIMUM ALLOWABLE SO_2 EMISSION RATE (lb/hr)
Riley Boiler 1	556.91 (On a combined stack basis)
Riley Boiler 2	
Riley Boiler 3	
Blast Furnace 1 Stoves	98.50
Blast Furnace 3 Stoves	90.00

TABLE V-A-2: Emission Limitations (Non-Combustion)

PROCESS/EQUIPMENT	MAXIMUM ALLOWABLE SO_2 EMISSION RATE (lb/hr)
Blast Furnace 1 Casthouse (roof & fume suppression)	2.01
Blast Furnace 3 Casthouse (roof & fume suppression)	1.69
BOP Process (roof)	6.64
Continuous Casting (roof)	5.25
Casthouse Baghouse	45.10

2. Testing Requirements:

a. The permittee shall have sulfur dioxide (SO_2) emissions stack tests performed on the boiler combined stacks within 6 months of completion of equipment installation. Emissions testing of the boiler combined stack and emission units listed in Table V-A-1 shall be tested at least once every two years. SO_2 emission tests shall be conducted according to Article XXI, §2108.02. The permittee shall submit a stack test protocol to the Department for approval at least 45 days prior to the test date(s). [§2108.02.b and §2108.02.e]

[redacted]

3. Monitoring Requirement:

a. The permittee shall determine the hourly H_2S concentration of the gas, per conditions V.A.3.b and V.A.3.c, and the amount of fuel combusted in each emission unit listed in Tables V-A-1 and V-A-2. [§2102.04.b.6; §2103.12.i]

b. The permittee shall determine the H_2S content of the blast furnace gas combusted at the facility at least once every calendar quarter. The sulfur content of BFG shall be determined by obtaining and analyzing samples of BFG produced at the blast furnaces at a sample location downstream of the gas cleaning system but prior to a combustion source. [§2102.04.b.6; §2103.12.i]

c. Except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the permittee shall continuously monitor and record the H_2S concentration (in grains(gr)/100 dscf) of the COG combusted and the fuel flow rate. Continuously shall be defined as at least once every 15 minutes. Under the current operating scenario, coke oven gas measurements are taken at the Clairton Plant. [§2102.04.b.6; §2103.12.i]

4. Record Keeping Requirements:

a. The permittee shall keep records of fuel combusted on an hourly basis in each of the emission units listed in Table V-A-1. [§2103.12.j]

b. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance**.** [§2103.12.j]

[redacted]

5. Reporting Requirements:

a. The permittee shall report to the Department semi-annually, in accordance with General Condition III.15, all instances of non-compliance with the conditions of this permit along with all corrective action taken to restore the subject equipment to compliance. If all the terms and conditions of this permit are complied with during the reporting period, then no report is necessary under this permit condition. [§2103.12.k]

b. Reporting instances of non-compliance in accordance with condition V.A.5.a above, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2103.12.k]

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K-3: U. S. Steel Irvin

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ALLEGHENY COUNTY HEALTH DEPARTMENT

AIR QUALITY PROGRAM
301 39th Street, Bldg. #7
Pittsburgh, PA 15201-1811

Federally Enforceable Installation Permit For 1-Hour SO_2 NAAQS

Issued To: **U. S. Steel Mon Valley Works**
Irvin Plant
Camp Hollow Road
West Mifflin, PA 15212

ACHD Permit#: **0050-I008**

Date of Issuance: September 14, 2017

Expiration Date: (See Section III.12)

Issued By: _____
JoAnn Truchan, P.E.
Section Chief, Engineering

Prepared By: _____
Hafeez A. Ajenifuja
Air Quality Engineer

TABLE OF CONTENTS

AMENDMENTS:

DATE SECTION(S)

I. CONTACT INFORMATION

Facility Location:
U. S. Steel Mon Valley Works
Irvin Plant
Camp Hollow Road
West Mifflin, PA 15122

Permittee/Owner:
U. S. Steel Mon Valley Works
Irvin Plant
Camp Hollow Road
West Mifflin, PA 15122

Responsible Official: **Kurt Barshick**
Title: General Manager
Company: U. S. Steel Mon Valley Works
Address: P.O. Box 878
Dravosburg, PA 15122
Telephone Number: (412) 675-2600
Fax Number: (412) 675-5407

Facility Contact: **Dan Belack**
Title: Environmental Engineer
Telephone Number: (412) 675-7382
Fax Number: (412) 675-7822
E-mail Address: dbelack@uss.com

AGENCY ADDRESSES:

ACHD Contact:
Chief Engineer
Allegheny County Health Department
Air Quality Program
301 39th Street, Building #7
Pittsburgh, PA 15201-1811

EPA Contact:
Enforcement Programs Section (3AP12)
USEPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

II. FACILITY DESCRIPTION

FACILITY DESCRIPTION

The U. S. Steel Mon Valley Works Irvin Plant is a secondary steel processing facility located in West Mifflin Borough, Allegheny County, Pennsylvania. The Irvin Plant receives steel slabs and performs one of several finishing processes on the steel slabs. The finishing processes commonly referred to as secondary steel processes, include hot and cold rolling, continuous pickling, annealing, and galvanizing. The facility is composed of an 80" hot strip mill, 64" & 84" continuous hydrochloric acid pickle lines, a cold reduction mill, HPH annealing furnaces, open coil annealing furnaces, a continuous annealing furnace, continuous galvanizing line no. 1, continuous galvanizing and aluminum coating line no. 2, four coke oven gas flares, and four natural gas/coke oven gas fired boilers.

[redacted]

The emission units regulated by this permit are summarized in Table II-1:

TABLE II-1: Emission Unit Identification

I.D.	SOURCE DESCRIPTION	SO_2 CONTROL DEVICE(S)	MAXIMUM CAPACITY	FUEL/RAW MATERIAL	STACK I.D.
P001-P005	80-Inch Hot Strip Mill Reheat Furnaces No. 1 to No. 5	NA	140 MMBtu/Hr	Coke Oven Gas and Natural Gas	SP1-SP6
P011	Continuous Annealing	NA	45 MMBtu/hr	Coke Oven Gas and Natural Gas	SP13
P009	HPH Batch Annealing Furnaces (31 individual furnaces)	NA	4.9 MMBtu/hr, each furnace	Coke Oven Gas and Natural Gas	SP10
P010	Open Coil Annealing Furnaces No. 1 to 9	NA	7.2 MMBtu/hr, each furnace	Coke Oven Gas and Natural Gas	SP12
P010	Open Coil Annealing Furnaces No. 10 to 13	NA	9.0 MMBtu/hr, each furnace	Coke Oven Gas and Natural Gas	SP12
P010	Open Coil Annealing Furnaces No. 14	NA	5.4 MMBtu/hr	Coke Oven Gas and Natural Gas	SP12
P010	Open Coil Annealing Furnaces No. 15 to 16	NA	7.47 MMBtu/hr, each furnace	Coke Oven Gas and Natural Gas	SP12

I.D.	SOURCE DESCRIPTION	SO_2 CONTROL DEVICE(S)	MAXIMUM CAPACITY	FUEL/RAW MATERIAL	STACK I.D.
B001	Boiler No. 1	NA	79.8 MMBtu/hr	Coke Oven Gas and Natural Gas	SB1
B002	Boiler No. 2	NA	84.6 MMBtu/hr	Coke Oven Gas and Natural Gas	SB2
B003	Boiler No. 3	NA	41.6 MMBtu/hr	Coke Oven Gas and Natural Gas	SB3
B004	Boiler No. 4	NA	41.6 MMBtu/hr	Coke Oven Gas and Natural Gas	SB3

DECLARATION OF POLICY

[redacted]

III. GENERAL CONDITIONS

[redacted]

[redacted]

[redacted]

15. Reporting Requirements (§2103.12.k)

a. The permittee shall submit reports of any required monitoring at least every six (6) months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by the Responsible Official.

b. Prompt reporting of deviations from permit requirements is required, including those attributable to upset conditions as defined in this permit and Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.

c. All reports submitted to the Department shall comply with the certification requirements of General Condition III.4 above.

d. Semiannual reports required by this permit shall be submitted to the Department as follows:

1) One semiannual report is due by July 31 of each year for the time period beginning January 1 and ending June 30.
2) One semiannual report is due by January 31 of each year for the time period beginning July 1 and ending December 31.

e. Quarterly reports required by this permit shall be submitted to the Department on the last day of the month following each calendar quarter. The first quarterly report for the period October 4, 2018 to December 31, 2018, will be due January 31, 2019.

f. Reports may be emailed to the Department at aqreports@alleghenycounty.us in lieu of mailing a hard copy.

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IV. SITE LEVEL TERMS AND CONDITIONS

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

25. SO_2 Compliance Monitoring

a. The permittee shall not flare, mix or combust coke oven gas, or allow such gas to be flared, mixed, or combusted as a fuel for or at any source unless the concentration of sulfur compounds, measured as hydrogen sulfide, in such gas is less than or equal to 35 grains per hundred dry standard cubic feet of coke oven gas. (§2105.21.h)

b. For sources listed in Table V.A.1, the permittee shall determine the H_2S grain loading and flow rate of the fuel as combusted. The permittee shall record the output of each system for measuring sulfur dioxide emissions discharged to the atmosphere.

26. SO_2 Compliance

The restrictions and requirements in Section V.A will become on or before effective October 4, 2018.

V. EMISSION UNIT LEVEL TERMS AND CONDITIONS

A. SO_2 Limits

The permittee is subject to the following conditions:

1. Restrictions:

a. The combustion units listed in Table V-A-1 shall only combust natural gas and coke oven gas. [§2102.04.b.6]

b. SO_2 emissions from the following sources shall not exceed the limitations in Table V-A-1 below: [§2102.04.b.6, §2105.21.h]

TABLE V-A-1: SO_2 Emission Limitations

Process	30 day Rolling Average Limit* (lb/hr)	Supplementary 24-hr Limit** (lb/hr)
Boiler #1	7.88	8.92
Boiler #2	8.36	9.46
Boilers #3-4 (aggregate)	8.21	9.30
80" Hot Strip Mill (aggregate)	108.63	118.75
HPH Annealing Furnaces (aggregate)	12.00	13.58
Open Coil Annealing (aggregate)	11.50	13.02
Continuous Annealing	8.07	9.14

* Limits are based on a rolling 30-day average of 24-hour (calendar day) averages.

** Supplementary 24-hour limit is not to be exceeded more than 3 times consecutively (over any consecutive 3 calendar day period).

2. Testing Requirements:

a. The permittee shall have sulfur dioxide (SO_2) emissions stack tests performed on emission units listed in Table V-A-1 at least once every two years as required by Article XXI §2108.02.b. SO_2 emission tests shall be conducted according to Method 6, 6A, 6B, or 6C as specified in 40 CFR 60, Appendix A. The permittee shall submit a stack test protocol to the Department for approval at least 45 days prior to the test date(s). [§2108.02.b; §2108.02.e]

b. Emissions of SO_2 shall be determined by converting the H_2S grain loading of the fuel burned and the fuel flow rate, to pounds per hour to determine compliance with the emission limitations of Table V-A-1 above. [§2103.12.h]

[redacted]

3. Monitoring Requirements:

Except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the permittee shall continuously monitor and record the H_2S concentration (in grains(gr)/100 dscf) of the COG combusted and the fuel flow rate required in Site Level Condition IV.25.b. Continuously shall be defined as at least once every 15 minutes. [§2102.04.b.6; §2103.12.i]

4. Record Keeping Requirements:

a. The permittee shall keep records of hourly fuel use (COG and natural gas) and hourly H_2S concentration in grains per 100 dscf. [§2102.04.b.6; §2103.12.j]

b. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance**.** [§2102.04.b.6; §2103.12.j]

[redacted]

5. Reporting Requirements:

a. The permittee shall report the concentration of H_2S per 100 dscf of COG averaged over a calendar day to the Department on a quarterly basis, in accordance with General Condition III.15.e. All instances of non-compliance with the conditions of this permit along with all corrective action taken to restore the subject equipment to compliance shall be reported. [§2103.12.k]

b. Reporting instances of non-compliance does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2103.12.k]

[redacted]

K-4: Harsco (Braddock Recovery)

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AIR QUALITY PROGRAM
301 39th Street, Bldg. #7
Pittsburgh, PA 15201-1811

Federally Enforceable Installation Permit For 1-Hour SO_2 NAAQS

Issued To: **Braddock Recovery, Inc.**
A Subsidiary of Harsco Corp.
1300 Braddock Avenue
Braddock, PA 15104

ACHD Permit#: **0265-I001**

Date of Issuance: September 14, 2017

Expiration Date: (See Section III.12)

Issued By: _____
JoAnn Truchan, P.E.
Section Chief, Engineering

Prepared By: _____
Hafeez Ajenifuja
Air Quality Engineer

TABLE OF CONTENTS

AMENDMENTS:

DATE SECTION(S)

I. CONTACT INFORMATION

Facility Location:
Braddock Recovery, Inc.
1300 Braddock Avenue
Braddock, PA 15104

Permittee/Owner:
Braddock Recovery, Inc., a Subsidiary of Harsco Corp.
300 Seven Fields Blvd
Seven Fields, PA 16046

Responsible Official: **Glenn Hundertmark**
Title: Manager, Environmental Control
Company: Harsco Corporation
Address: 300 Seven Fields Blvd, Suite 300
Seven Fields, PA 16046
Telephone Number: (724) 741-6662
Fax Number: (724) 741-6696
E-mail Address: ghundertmark@harsco.com

Facility Contact: **Michael Buvalla**
Title: Plant Manager
Telephone Number: (412) 351-5420
Fax Number: (724) 741-6696
E-mail Address: mbuvalla@harsco.com

AGENCY ADDRESSES:

ACHD Contact:
Chief Engineer
Allegheny County Health Department
Air Quality Program
301 39th Street, Building #7
Pittsburgh, PA 15201-1811

EPA Contact:
Enforcement Programs Section (3AP12)
USEPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

II. FACILITY DESCRIPTION

FACILITY DESCRIPTION

Braddock Recovery, Inc. (Braddock Recovery), a subsidiary of Harsco Corporation, is located on the U. S. Steel Edgar Thompson site. This facility receives by-products from U. S. Steel, including furnace flue dust, slag and sludge, mill scale, and coke fines, dries them in a rotary kiln fired with coke oven gas, combines them with lime, cement, sodium silicate, water, bentonite and molasses in a wet mixing process in two pugmills, and forms the moist mix into briquettes. These finished briquettes are piled on-site with a radial stacker and then loaded onto railcars and sent back to U. S. Steel Edgar Thomson to be used in the furnaces. The raw materials are loaded into the first stage of the process with a front-end loader. The front-end loader loads finished briquettes onto a conveyor and then into the railcars. Materials are moved through the entire process by a series of conveyors. The rotary kiln is controlled by a cyclone and a fabric filter. The particulate removed with these control devices is sent back to screw conveyor (S008). A vibrating screen is used just after the kiln to remove particles that are too large. Another vibrating screen is used at the end of the process to separate fine particles from the finished briquettes. These fines are then re-directed via conveyor to the mixers. The front-end loader loads finished briquettes onto a conveyor and then into the railcars. There are paved roadways and storage piles on-site. Fugitive particulate emissions from the storage piles are controlled by watering. Fugitive particulate emissions from the unpaved roadways are controlled with watering for dust control. Most operations occur in enclosed spaces.

The facility, which is located in Braddock, Pennsylvania, is a minor source of all criteria pollutants and Hazardous Air Pollutant (HAPs), as defined in Section 2101.20 of Article XXI. However, the facility is considered a major source based on operating, managing or supporting the U. S. Steel Edgar Thomson Plant “Waste Product Recycling and Briquetting Process.

[redacted]

The emission units regulated by this permit are summarized in Table II-1:

TABLE II-1: Emission Unit Identification

I.D.	SOURCE DESCRIPTION	SO_2 CONTROL DEVICE(S)	MAXIMUM CAPACITY	FUEL/RAW MATERIAL	STACK I.D.
P005	Rotary Kiln Dryer	NA	50 tons/hr	Sludge, Mill Scale, Coke Breeze, Flue Dust, Coke Oven Gas	Stack 01

DECLARATION OF POLICY

[redacted]

III. GENERAL CONDITIONS

[redacted]

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[redacted] [redacted]

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[redacted] [redacted]

[redacted]

15. Reporting Requirements (§2103.12.k)

a. The permittee shall submit reports of any required monitoring at least every six (6) months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by the Responsible Official.

b. Prompt reporting of deviations from permit requirements is required, including those attributable to upset conditions as defined in this permit and Article XXI §2108.01.c, the probable cause of such deviations, and any corrective actions or preventive measures taken.

c. All reports submitted to the Department shall comply with the certification requirements of General Condition III.4 above.

d. Semiannual reports required by this permit shall be submitted to the Department as follows:
1) One semiannual report is due by July 31 of each year for the time period beginning January 1 and ending June 30.
2) One semiannual report is due by February 1 of each year for the time period beginning July 1 and ending December 31.

e. Reports may be emailed to the Department at aqreports@alleghenycounty.us in lieu of mailing a hard copy.

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IV. SITE LEVEL TERMS AND CONDITIONS

[redacted]

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a. Are visible at or beyond the property line;

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V. EMISSION UNIT LEVEL TERMS AND CONDITIONS

A. Process P005: Rotary Dryer

Process Description: Rotary Kiln Dryer
Facility ID: S004
Max. Design Rate/Units: 24.59 MMBTU/hr
Fuel: Coke Oven Gas
Raw Materials: Briquettes for Blast Furnace and BOP Shop
Control Device(s): One (1) Cyclone and One (1) Baghouse

1. Restrictions

a. Emissions of SO_2 from the rotary kiln (S004) shall not exceed the emissions limitations in Table V-A-1 below. [§2102.04.b.6, §2105.21.h.~~4~~]

TABLE V-A-1: Rotary Kiln Emission Limitations

POLLUTANT	Hourly Emission Limit (lbs/hr)	Annual Emission Limit (tons/year)*
SO_2	1.80	7.88

* A year is defined as any consecutive 12-month period.

2. Testing Requirements

a. Emissions of SO_2 shall be determined by stack testing or converting the H_2S concentration (grains/100 dscf) of the fuel burned and the fuel flow rate, to pounds per hour of SO_2. [§2102.04.b.6; §2103.12.h]

b. The Department reserves the right to require additional emissions testing sufficient to assure compliance with the terms and conditions of this permit. Such testing shall be performed in accordance with §2108.02. [§2103.12.h.1]

3. Monitoring Requirements

The permittee may determine the hourly H_2S concentrations (grains/100 dscf) of the fuel burned, or the permittee may obtain the hourly H_2S concentrations from U.S. Steel. [§2103.12.i]

4. Record Keeping Requirements

a. The permittee shall keep records of hourly fuel use and hourly H_2S concentration (grains/100 dscf) to be used for SO_2 emission calculations. [§2103.12.j]

b. The permittee shall record all instances of non-compliance with the conditions of this permit upon occurrence along with corrective action taken to restore compliance**.** [§2102.04.b.6; §2103.12.j]

[redacted]

5. Reporting Requirements

a. The permittee shall report all instances of non-compliance with the conditions of this permit along with all corrective action taken to restore the subject equipment to compliance to the Department semiannually in accordance with General Condition III.15.d. [§2103.12.k]

b. Reporting instances of non-compliance in accordance with condition V.A.5.a above, does not relieve the permittee of the requirement to report breakdowns in accordance with Site Level Condition IV.8, if appropriate. [§2103.12.k]

[redacted]

[redacted]

[redacted]

[redacted].